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Polycarbodiimide	1 gm
Water	approx. 2 gms

A core of the same type and dimensions as Example III was dipped into the composition for approximately 5 seconds. It was then placed in a Fluorinert® FC-43 fluorochemical bath at 145° C. for approximately 20 seconds. A porous coating on the rod was obtained. The coated rod was then fired at 1600° C. for 4 hours. The porous coating was about 0.7 millimeters thick and had an average pore size of about 300 microns. The pores of the coating had sharper edges and surface than those of Example I.

EXAMPLE X

A composition was prepared by mixing the following components at room temperature:

Al Si Mag® 614 ceramic powder	18 gm
Aluminum Stearate	0.5 gm
Polycarbodiimide	1 gm
Carboset® 514	2 gm
Propylene glycol	2 gm
Water	3 cc
Acetone	6 cc

A platinum wire of 1 millimeter in thickness was dipped into the composition for 6 seconds and immediately dropped into a hot bath of Fluorinert® FC-43 fluorocarbon at 150° C. A porous coating of the composition was obtained on the wire. It adhered fairly well to the wire but could be scraped off with a hard instrument. After firing at 1600° C. for 1 hour the platinum fused with the coating at their interface. A porous ceramic on the platinum wire was obtained.

EXAMPLE XI

A percutaneous device for implantation was prepared by machining a solid core of prefired Al Si Mag® 772 aluminum oxide into a flared cylindrical shape which is 5/16 inch (8 millimeters) long and 5/32 inch (4 millimeters) in diameter with a 1/16 inch (1.6 millimeter) flare which had a 15/64 inch (6 millimeter) diameter. A piece of Soxhett® paper 5/8 inch (16 millimeter) by 1/2 inch (13 millimeter) with a 5/32 inch (4 millimeter) diameter hole in the center was fashioned into a tube with an open slit running the length thereof. The solid core was then inserted into the hole in the paper and the entire composite was dipped for about 3 seconds into a composition which was prepared by mixing the following components at room temperature:

AlSiMag® 614 ceramic powder	9 gm
Polycarbodiimide	0.5 gm
Aluminum stearate	0.25 gm
Carboset® 514	1 gm
Water	1 cc
Propylene glycol	2 cc
Acetone	3.5 cc

After dipping the coated composite was transferred to a Fluorinert® FC-43 fluorocarbon bath at 155° C. After the boiling has subsided the coated substrate was removed and dried overnight in a 60° C. oven. Suture holes were formed in the stem of the coated composite and it was fired at 1600° C. for 4 hours. After firing the coated composite was prepared for implanting by pyrolyzing for 3 hours at 600° C. in air to remove organics, by placing it for 3 hours in 50 percent hydrochloric acid

solution to remove metal salts and by water washing it for 1 hour in deionized water. After sterilization, the implant was placed through the neck skin of a dog. The implant remained stable and uninfected for the 3 month term of the experiment. Upon removal and microscopic examination, tissue was found to have grown into the porous coating and into and through the cylindrical portion of the skirt thereby anchoring the implant and providing a seal to bacterial invasion (no evidence of epithelial down-turn was noted). The implant had the configuration of the implant shown in FIGS. 1 and 1A except that the ceramic cylinder 8 was solid. Therefore, the Teflon® plug 4 was not present.

We claim:

1. A method for preparing coated substrates comprising:

(A) contacting a substrate selected from the class consisting of a ceramic substrate and metallic substrate with a composition to provide a coating of said composition on at least a portion of said substrate, said composition comprising:

- (1) 25 to 80 percent by weight of a material selected from the class consisting of ceramic powder and powdered metal wherein the number average of the longest dimension of the particles of the material is from about 0.1 to about 300 microns;
- (2) 2.0 to 12 percent by weight of a binder capable of adhering said material particles; and
- (3) 18 to 73 percent by weight solvent;

(B) rapidly volatilizing at least a portion of said solvent of said composition on said substrate to form volatilized solvent bubbles within said composition which escape from said composition and thereby form porosity within said composition and

(C) sintering said coated substrate to form a coated substrate with a porous coating, said pores of said porous coating being from about 4 to about 350 microns in diameter.

2. The method of claim 1 wherein said material comprises powdered metal selected from the group consisting of stainless steel, titanium, platinum, gold and alloys thereof.

3. A method for preparing ceramic prosthetic device comprising:

(A) contacting a ceramic substrate with a composition to provide a coating of said composition on at least a portion of said substrate, said composition comprising:

- (1) 25 to 80 percent by weight ceramic powder wherein the number average of the longest dimension of the particles of the ceramic powder is from about 0.1 to about 300 microns;
- (2) 2 to 12 percent by weight of a polymeric binder capable of adhering said ceramic powder particles and pyrolyzable under the conditions of step (C); and
- (3) 18 to 73 percent by weight solvent;

(B) rapidly volatilizing at least a portion of said solvent of said composition on said substrate to form volatilized solvent bubbles within said composition which escape from said composition and thereby form porosity within said composition; and

(C) sintering said coated substrate to form a prosthetic device with a porous ceramic coating, said coating being of a sufficient thickness and having pores of a sufficient size to permit tissue ingrowth.